

What is claimed is:

1. A crystalline ceramic dental mill blank having a Contrast Ratio value less than about 0.7.
- 5 2. The mill blank of claim 1 wherein the ceramic is a single crystal.
3. The mill blank of claim 1 wherein the ceramic is polycrystalline.
4. The mill blank of claim 3 wherein the ceramic is single-phase crystalline.
5. The mill blank of claim 3 wherein the ceramic is multi-phase crystalline.
6. The mill blank of claim 1 wherein the blank has a tooth-like shade.
- 10 7. The mill blank of claim 1 wherein the ceramic is aluminum oxide.
8. The mill blank of claim 1 wherein the ceramic is selected from the group consisting of magnesium-aluminum spinel, zirconium oxide, yttrium aluminum garnet, zirconium silicate, yttrium oxide and mullite
9. The mill blank of claim 1 wherein the blank has a Contrast Ratio value less than about 0.6.
- 15 10. The mill blank of claim 1 wherein the blank has a Contrast Ratio value less than about 0.5.
11. The mill blank of claim 1 wherein the blank, after milling into a Flexural Strength test sample, has a flexural strength greater than about 250MPa.
- 20 12. The mill blank of claim 1 wherein the blank, after milling into a Flexural Strength test sample, has a flexural strength greater than about 350MPa.
13. The mill blank of claim 1 wherein the blank, after milling into a Flexural Strength test sample, has a flexural strength greater than about 500MPa.
- 25 14. The mill blank of claim 1 wherein the ceramic comprises less than about 5wt% glass.

15. The mill blank of claim 1 wherein the ceramic comprises less than about 2 wt% glass.

16. The mill blank of claim 1 wherein the ceramic is essentially free of oxynitride.

17. The mill blank of claim 1 wherein the blank includes a support stub.

18. A dental mill blank comprising at least 99% polycrystalline ceramic having at least 99% theoretical density and a Contrast Ratio value of less than about 0.7, wherein the blank, after milling into a Flexural Strength test sample, has a flexural strength greater than about 250MPa.

19. The blank of claim 18 wherein the ceramic is selected from the group consisting of aluminum oxide, yttrium oxide, yttria-alumina garnet, and magnesium-aluminum spinel.

20. A method for making a dental prosthesis comprising the steps of:

- a) providing a dental mill blank comprising crystalline ceramic having a Contrast Ratio less than about 0.7; and
- b) carving the mill blank into a desired shape.

21. The method of claim 20 wherein the ceramic has a Contrast Ratio less than about 0.6.

22. The method of claim 20 wherein the ceramic has a Contrast Ratio less than about 0.5.

23. The method of claim 20 wherein the carved mill blank has a flexural strength greater than about 250 MPa.

24. The method of claim 20 wherein the carved mill blank has a flexural strength greater than about 350MPa.

25. The method of claim 20 wherein the carved mill blank has a flexural strength greater than about 500 MPa.

26. The method of claim 20 wherein the mill blank is carved into the desired shape in less than about 3 hours.

27. The method of claim 20 wherein the mill blank is carved into the desired shape in less than about 2 hours.

5

28. The method of claim 20 wherein the mill blank is carved into the desired shape in less than about 1 hour.

29. The method of claim 20 further comprising the step of:

c) adding additional material to the carved blank.

30

31. The method of claim 20 further comprising the steps of:

10

c) manually changing the shape of the carved blank and

d) finishing the outer surface of the carved blank.

31

32. The method of claim 20 wherein the carving is performed by a milling machine.

32

33. The method of claim 20 wherein the carving is performed by a hand-held instrument.

15

33

34. A method for using a dental prosthesis comprising the steps of:

a) providing a dental mill blank comprising crystalline ceramic having a Contrast Ratio less than about 0.7;

b) carving the mill blank into a desired shape; and

c) attaching the carved blank to tooth or bone structure.

20

34

35. The method of claim 34, wherein the carved blank is attached to the tooth or bone structure with a color-matching bonding agent.

35

36. The method of claim 34 further comprising an interim step of:

663280"09583260
1.126
Rule

a) applying a color-matching composition onto a the tooth or bone structure prior to placing the carved blank onto the tooth structure.

36
37. A multiple-unit kit comprising a crystalline ceramic dental mill blank having a Contrast Ratio less than about 0.7 and instructions for using the mill blank.

5 37
38. The kit of claim 37 further comprising a color-matching composition suitable for use in the oral environment.

38
39. The kit of claim 37 further comprising a bonding agent.

39
40. The kit of claim 37 further comprising a milling lubricant.

40
41. A crystalline ceramic dental prosthesis having a Contrast Ratio value less than about 0.7.

41
42. The prosthesis of claim 41 wherein the ceramic is a single crystal.

42
43. The prosthesis of claim 41 wherein the ceramic is polycrystalline.

43
44. The prosthesis of claim 41 wherein the ceramic is single-phase crystalline.

44
45. The prosthesis of claim 41 wherein the ceramic is multi-phase crystalline.

15 45
46. The prosthesis of claim 41 wherein the ceramic is selected from the group consisting of aluminum oxide, magnesium-aluminum spinel, zirconium oxide, yttrium aluminum garnet, zirconium silicate, yttrium oxide and mullite.

46
47. The prosthesis of claim 41 having a flexural strength greater than about 250MPa.

20 47
48. The prosthesis of claim 41 wherein the ceramic comprises less than about 5wt% glass.

48
49. The prosthesis of claim 41 wherein the ceramic is essentially free of oxynitride.

ADD A1

ADD
B8

ADD D7 20